Space Weather Forecast

Issued on Sunday, 06 November 2022 at 12:22 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance G1/minor storms days 3 and 4 (8th-9th). Slight chance of Moderate class flares (R1; Minor radio blackouts) throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low through the last 24 hours, with a low level common class flare observed at 06/0113 UTC. There are six sunspot regions, which are mainly covering the northern hemisphere. One large region in the northeast, and two moderately sized spots with one in the northeast and the second in the northwest. The remaining spots are small and simple. No significant Earth-directed coronal mass ejections are anticipated.

Solar Wind / Geomagnetic Activity: The solar wind started the period at elevated levels around 500 km/s with a slow decline to slightly elevated levels around 420 km/s. Total magnetic field strength has remained weak with a mostly declining trend. The north-south component varied weakly, with a slightly negative bias. Geomagnetic activity remained at Quiet to Unsettled levels.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be Low or Very Low, with a continuing chance (20%) of Moderate activity if an isolated Moderate class flare is observed, and this risk comes from the largest region in the northeast.

Solar Wind / Geomagnetic Activity: No Earth directed coronal mass ejections feature in the forecast. Solar winds will probably decline further to reach Slow levels. A possible high speed stream may affect the Earth on days 3 and 4 (8th and 9th), although there is low confidence in the strength of any connection. Geomagnetic activity is expected to be Quiet to Unsettled, but there is a slight chance of Active or G1/Minor Storm intervals on days 3 and 4 (8th-9th) due to successive arrivals of coronal hole fast winds.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	5	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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